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|---|-------------|-----------------------------|---------------------|------------------|
| 10/591,662  | 09/05/2006  | Karl Ott                    | 295335US0PCT        | 3137             |
| 22850 7590 05/12/2011<br>OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, L.L.P.<br>1940 DUKE STREET<br>ALEXANDRIA, VA 22314 |             |                             |                     |                  |
| EXAMINER<br>GRESO, AARON J  |             |                             |                     |                  |
| ART UNIT<br>1763  |             | PAPER NUMBER                |                     |                  |
| NOTIFICATION DATE<br>05/12/2011   |             | DELIVERY MODE<br>ELECTRONIC |                     |                  |

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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### Office Action Summary

**Application No.**

10/591,662

**Applicant(s)**

OTT ET AL.

**Examiner**

AARON GRESO

**Art Unit**

1763

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 08 April 2011.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 15-25 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 15-25 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

### **DETAILED ACTION**

Any rejections and/or objections made in the previous Office Action and not repeated below, are hereby withdrawn.

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action. References previously cited are found in a previously provided USPTO 892.

Claim 15 has been amended to indicate that at least one polyfunctional isocyanate having 4-30 carbon atoms with at least one diol material be included in the claim limitations and Claim 25 further requiring a polyisocyanate and a diol material.

### ***Claim Rejections - 35 USC § 103***

**Claims 15-22, 24-25** are rejected under 35 U.S.C. 103(a) as being obvious over Pears et al. (WO 99/50362), as evidenced by Argabright (US 3,526,655).

#### **As to Claims 15 and 25:**

Pears et al. discloses making water dispersible polyurethanes (page 1 lines 23-34). Materials are indicated to be made in descriptive steps i) and ii) (page 1, lines 23-30, and pages 4-6); the method comprises (a) and (b) components, to make a water-dissipatable polyurethane (page 1 lines 23-24) indicated to be diisocyanates and OH containing materials respectively (page 2 lines 20-33) including two isocyanate reactive groups materials {taken as diol material}.

The compositions comprise polyisocyanates or diisocyanates, including polyisocyanates comprising 15 carbons (page 2 lines 20-23) **{addressing Claim 15 in part}**, modified polyisocyanates, modified isocyanates, and their mixtures (page 2 lines 8- 26), including those that are reacted with hydroxyl or primary or secondary amines (page 2 lines 27-33), indicated to include diol material (page 3 lines 14-15) **{addressing Claim 25 in part}**; modified isocyanates are indicated to also comprise dimethylol propionic acid to facilitate water dispersing {taken as being hydrophilic} (page 3 lines 14-17).

Materials are to be mixed and reacted in a solvent until a isocyanate material is finished reacting with isocyanate reactive material (page 4 lines 29-34); a preferred solvent indicated for use in material preparation is N-ethyl-2-pyrrolidone (page 7 lines 30-31 and 35-36) {taken as 1-ethyl-2-pyrrolidone or N-ethylpyrrolidone (Official Notice); as known and employed in the isocyanate art as or N-ethylpyrrolidone and N-methylpyrrolidone as an a-protic solvents, as evidenced by Argabright (col 2 lines 55-71)} and is indicated to be placed into water in a ratio of water to solvent being more preferably 99:1 (page 8 lines 21-26) {the amount of solvent percent taken as being less when considering including reactive components in the composition}. The subsequent resultant materials are indicated to be mixed in a liquid indicated to be water (page 7 lines 3-9).

**Further as to Claims 15 and 25:**

Although Pears et al. teaches that organic solvents are to be employed to lower mixture viscosity, citing for example the use of N-methyl pyrrolidone (page 4 lines 29-

31), and although Pears et al. teaches the interchangeability between n-methyl pyrrolidone and n-ethyl pyrrolidone when making water dispersible compositions (page 7 lines 35-36); and although the reference is taken as suggesting employing the same non-isocyanate reactive materials for making isocyanate derivative materials as are employed in the water dispersion; the reference does not further indicate that the polyisocyanate is made in N-ethylpyrrolidone.

On the other hand, the difference between the compound taught by Pears et al. and instant Claim 15, is that Pears et al. teach compounds having a having hydrogens on the methyl of an N-methyl moiety, while instant Claim 15 employs a compound having an additional methyl group. However, instant Claim 15 is rendered obvious in view of the compounds (and process) taught by Pears et al since it has long been held that substitution of methyl for hydrogen on a known compound is not a patentable modification absent unexpected or unobvious results. In re Lincoln, 126 USPQ 477, 53 USPQ 40 (CCPA 1942).

In the instant case, the compound taught by Pears et al. has non-isocyanate reactive, solvent properties, a person having ordinary skill in the art would reasonably expect a methyl-substituted derivative of a compound taught by Pears et al. would also possess non-isocyanate reactive, solvent properties.

Therefore, **Claim 15, and Claim 25** are rejected under 35 U.S.C. 103 as obvious in accord with MPEP 2144.09 regarding Homology and Isomerism which states:

"Compounds which are position isomers (compounds having the same radicals in physically different positions on the same nucleus) or homologs (compounds differing

regularly by the successive addition of the same chemical group, e.g., by -CH<sub>2</sub>- groups) are generally of sufficiently close structural similarity that there is a presumed expectation that such compounds possess similar properties".

It would have been obvious to one of ordinary skill in the art at the time of the invention, to have employed a methyl-extended homolog of a chemical taught by Pears et al., to provide for reduced viscosity of reactive isocyanate compositions, by employing a homolog of the materials taught by Pears et al., with a reasonable expectation of success.

**Further as to Claim 16 a):**

Materials are reacted in an organic solvent indicated per step (i) (page 4 lines 17-18) with isocyanate materials and isocyanate reactive materials in a ratio of about 1.1 to 2 to 1; isocyanates indicated to be .

**Further as to Claim 16 b):**

Isocyanate reactive materials are indicated to be diols; the diols employed are indicated to have molecular weights of 3000 or 2000 and other diol materials employed are indicated to have molecular weights below 400 such as cylcohexyldimethanol {C<sub>8</sub>H<sub>16</sub>O<sub>2</sub> molecular weight of  $8 \times 12 + 16 \times 2 + 16 = 96 + 32 + 16 = 96 + 48 = 144$ } (page 4 lines 9-13).

**Further as to Claim 16 c):**

Materials employed are also indicated to be used for neutralizing carboxylic acid groups that are allowed to fully or partially neutralized with non-ionic materials indicated to be primary or secondary amines or polyols (page 3 lines 33-39).

**Further as to Claims 16 d) and Claims 17-22:**

Water dispersing group materials are also present (page 2 lines 34-40 and page 3-4 bridging paragraph and page 3 lines 8-11), that include carboxylic acid groups, indicated to be dimethylol propionic acid {**addressing Claims 17-21**}, or present in the form of a polyol or polyamine with such groups comprising a mixture of ionic or non-ionic groups {**addressing Claim 22**}.

**Further as to Claim 16:**

The example in Table 1 (page 10) is also taken as applicable to Claim 16 a), b), c), d) per the following:

Table 1 indicates a composition, comprising an isocyanate-reactive material form stage 1 (pages 9-10), reacted to form a terminated material comprising a material that is not the same as the materials employed to make the polyurethane prior to endcapping, comprising 1) isophorone diisocyanate [corresponding to 16 a)]; 2) propylene glycol (MW 1000) [40.56 g] [corresponding to b1)]; 3) dimethylol propionic acid MW 134.1 [6 g] [corresponding to 16 d)]; where diol material of 16b1) corresponds to 100%.

In regard to total diols including 16d) materials, the following applies:

Where the mole percentages of diol material apply as follows:

$$\{100 \times (40.56/1000) / (0.04056 + 0.04474)^* \} + \{100 \times (6/134.1) / (0.04056 + 0.04474)\}$$
$$= 100 \times 0.04056 / 0.0853 + 100 \times 0.04474 / 0.0853 = 47.55 \text{ mol\% polypropylene glycol} + 52.5\% \text{ dimethylol propionic acid} = 100\% \text{ diols with 16b2) materials being taken as zero.}$$

*\*[Molecular weights are per Official notice and readily recognized in the art]\**

**Further as to Claim 24:**

Materials are indicated to be printed onto textiles or paper (page 14 lines 29-32) {taken as coating small areas on paper}.

It would have been obvious to one of ordinary skill in the art at the time of the invention, to have employed a homolog of non-isocyanate reactive solvent employed by Pears et al., while further employing the teachings of Pears et al. to make the same or similar materials in the same or similar manner with a reasonable expectation of success.

**Claim 23** is rejected under 35 U.S.C. 103(a) as being unpatentable over Pears et al. (WO 99/50362) as evidenced by Argabright (US 3,526,655), and as applied to Claims 15-22, 24-25 above, in view of Bruchmann et al. (DE 101 61 156, citations refer to the English equivalent, US 2005/0043467).

Although Pears et al. suggests that n-ethyl 2-pyrrolidone, known in the art the art as an a-protic solvent {as evidenced by Argabright col 2 lines 55-71}, is employed for polyurethane preparation; and that catalysts, including organo-tin material and others "as known in the art" are employed in either step i) or ii) (Pears et al. page 4 lines 26-28); Pears et al. does not further indicate the employment of a cesium catalyst.

On the other hand, Bruchmann et al. teaches aqueous dispersions comprising a polyurethane (page 1 [0001]) composed of diisocyanates having 4 to 12 carbons (page 1 [0018]), diols of which 10 to 100 mol% have a molecular weight of from 500 to 5000



and 0 to 90 mol% gave a molecular weight of from 60 to 500 (page 1 [0003]-[0005]), and monomers containing at least one isocyanate group or at least one isocyanate-reactive group and further carrying at least one hydrophilic group or potentially hydrophilic group (page 1 [0006]). The polyurethane is made by preparing polyurethane prepolymers, dispersing them in water, and then chain extending them with polyamines (page 4 [0058]).

Bruchmann et al. indicates that the cesium catalyst employed is employed during the reaction (page 1 [0009] and page 5 [0077]); the catalyst being deployed in water or an a-protic solvent (page 5 [0079]).

Bruchmann et al. also teaches that tin catalysts are toxic and should be avoided (page 1 [0012] and [0015]) while the reference further teaches that unwanted branching is avoided, and that the catalysts are easier to implement (page 6 [0099]).

Although Bruchmann et al. teach that additional solvent employed should be kept below 10% (page 5 [0085]), the amount of n-ethyl 2-pyrrolidone, suggested by Pears et al., is indicated to be as low as 1%.

It would have been obvious to one of ordinary skill in the art at the time of the invention, to have employed a non-toxic catalyst, such as a cerium salt as suggested by Bruchmann et al., instead of organo-tin material taught by Pears, to provide for easier to implement, safer compositions with less branching, in the compositions taught by Pears, ready for improvement, by employing cesium catalysts with the same application employing the same similar materials, with a reasonable expectation of success.

***Response to Arguments***

Applicant's arguments filed 16 November 2010 have been fully considered but they are not persuasive.

Applicant argues In regard to Pears et al. (WO 99/50362) as evidenced by Argabright (US 3,526,655):

Materials with the same or similar materials employed for two lists are not indicative of indicating interchangeability {page 7 penultimate paragraph}.

In response, it would be expected that materials employed for the same or similar applications be possess the same or similar results, as suggested for employment of N-methyl pyrrolidone, as N-methyl pyrrolidone is in both lists. Further, as applied for the rejections above, homologs of materials would also be expected for having same or similar properties {see 35 USC 103(a) rejections for **15-22, 24-25** above}.

Applicant argues in regard to Pears et al.:

That Pears et al. does not make or suggest all elements in regard to USC 102(b) rejections.

In response, 35 USC 102(b) rejections are withdrawn.

Applicant argues in regard to Pears et al. in view of Bruchmann et al. (DE 10161156 per interpretation via English US 2005/0043467) {page 8 last two paragraphs):

That Bruchmann et al. does not further address deficiencies of Pears et al. as evidenced by Argabright as further applied to Claim 23.

In response, as Pears et al. per evidence by Argabright is not found deficient, rejections regarding Claim 23 are not deficient.

The rejections stand.

### ***Conclusion***

Accordingly, THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

### ***Examiner Contact Information***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to AARON GRESO whose telephone number is (571)270-7337. The examiner can normally be reached on M-F 0730-1700.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Milton Cano can be reached on 571 272 1398. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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